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CI505

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Scenario:

With the increasing pollution in the river, the need for keeping pollution out of the river is becoming more and more important. Everyone around the world have obligation to protect the world we live in and if students have a chance, they will know the whole polluted process and the possible solution to remove the pollution and improve the water quality.

Department of Natural Resource of Iowa reported standard of Iowa water quality and impaired water lists. Besides, DNR encourages people to build their own watershed project for solutions. In order to get a reliable project, you need to state actuate data and compelling evidence to show your thoughts. At the end, you will present your idea in some creative ways.

You will work in teams of three students. Each team could choose the area they interested in and collect necessary data. Each team will design a their own project to improve the water quality and create a presentation to show their conclusion.

TPACK plans

1.Learning goals:

Effective communication and collaboration

Demonstrate the understanding of chemical and biological knowledge

Creative thinking

Design a possible solution.

2. Eight Practical Pedagogical Decisions:

1. High student centered
2. Divergent type of learning
3. Require prior experience to build a possible solution
4. Deep knowledge of chemistry and biology when discuss the possible methods
5. Take one or two week to finish and present
6. Structured in terms of outline but less structured in demonstrating and presentation
7. groups of 3 to 4.
8. Multiple additional resources required.

3. Activity Types:

1. data collection: students use technology to collect information about pollution in rivers or lakes.
2. Brainstorming: all groups work for their brainstorming idea and begin to design their own project.
3. Design: small groups work for their own topic and prepare for the presentation based on reliable resource and submit a possible solution using sketchup or PowerPoint.
4. Presentation: each group create a presentation to show their design by presentation software such as Power point or Google Presentation
5. Peer feedback: each student provide a feedback to each group through moodle or google form

4. Assessment Strategies:

1. This project assess students’ ability to apply their knowledge to watershed system.
2. Formative assessment will be scheduled in this project to assess students’ understanding of their task.

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|  | fail | passing | good | excellent |
| Critical thinking |  |  |  |  |
| Clear explanation |  |  |  |  |
| Apply knowledge to basic design of project |  |  |  |  |

5. Resource or tool

* Google doc
* Power point
* Sketchup

Suggestedresource:

<http://www.iowadnr.gov/Environment/WaterQuality/WatershedImprovement/WatershedResearchData/WaterImprovementPlans.aspx>

<http://www.iowadnr.gov/Environment/WaterQuality/WatershedImprovement/ResourcesforLocalGroups/StartaLocalEffort.aspx>

<http://www.iowadnr.gov/InsideDNR/RegulatoryWater/WaterQualityStandards.aspx>